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NEW TRENDS: THE SERVICIFICATION OF MANUFACTURING, GLOBAL SUPPLY CHAINS AND THE LABOUR MARKET

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Abstract

Over the past decades, global production has become more fragmented with different tasks of production processes being performed in different countries. This organization of production along global supply chains has increased the interconnectedness between economic actors in different sectors across borders. This in turn has had labour market implications, as a large number of jobs have become directly or indirectly dependent on production linkages between countries. This article discusses recent trends in jobs within global supply chains that are linked to the so-called "servicification of manufacturing".

En las últimas décadas, la producción global se ha fragmentado en diferentes tareas de los procesos de producción realizándose en diferentes países. Esta organización de la producción a lo largo de las cadenas mundiales de suministro ha aumentado la interconexión entre los agentes económicos de distintos sectores y países. Esto, a su vez, ha tenido repercusiones en el mercado de trabajo, ya que un gran número de puestos de trabajo se han convertido directa o indirectamente en vínculos de producción entre países. Este artículo discute las nuevas tendencias en puestos de trabajo que forman parte de cadenas mundiales de suministro y son asociados a la llamada "servicificación de la manufacturación".

Título: Nuevas tendencias: la servicificación de la manufactura, las cadenas de suministro mundial y el mercado de trabajo

Keywords: outsourcing, global supply chains, servicification de la manufacturación.
Palabras clave: externalización productiva, cadenas de suministro mundial, servicificación of manufacturing.

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Summary

1. Introduction

Over the past decades, global production has become more fragmented with different tasks of production processes being performed in different countries. This organization of production along global supply chains has increased the interconnectedness between economic actors in different sectors across borders. This in turn has had labour market implications, as a large number of jobs have become directly or indirectly dependent on production linkages between countries.

The ILO has recently published estimates of the number of jobs in global supply chains (ILO, 2015; Kizu, Kühn and Viegelahn, 2016). These estimates, available for 40 countries that account for around two thirds of the global labour force, are based on international input-output tables and sectoral employment data from the World Input Output Database.[1] According to the estimates, there were 453 million workers that had a job related to global supply chains in these 40 countries in 2013, compared with 296 million workers in 1995, an increase of around 53 per cent. Emerging economies account for most of the overall increase in GSC-related jobs, contributing with an estimated 116 million more jobs as of 1995. GSC-related jobs account for 20.6 per cent of total employment among the 40 countries, compared with 16.4 per cent in 1995.

While these aggregate figures provide insights into the aggregate dynamics of job creation within global supply chains, they certainly hide some heterogeneity. Trends differ, depending on the countries and sectors in which these jobs are located, and the countries and sectors that create the demand for these jobs. This article discusses recent trends in one particular type of jobs, namely services jobs in global supply chains that are dependent on demand for manufactured goods. These type of jobs are related to the so-called "servicification of manufacturing", which describes the increasing use of services inputs in the production of manufactured goods.

2. The servicification of manufacturing: what are the trends in terms of jobs?

Services are being increasingly used as an input in the production of manufactured goods. Firms may have a variety of motives to use services in production. One example is the production of a mobile phone that goes far beyond the mere assembly and production of different physical parts and components. Mobile phone producers also heavily rely on services inputs, such as software development, technical and visual design or marketing. Indeed, it is often exactly these services inputs that allow firms to

[1] These 40 countries include 7 emerging economies (Brazil, China, India, Indonesia, Mexico, the Russian Federation and Turkey) and 33 developed economies (Australia, Canada, EU-27 countries, Japan, Republic of Korea, Taiwan (China) and the United States).

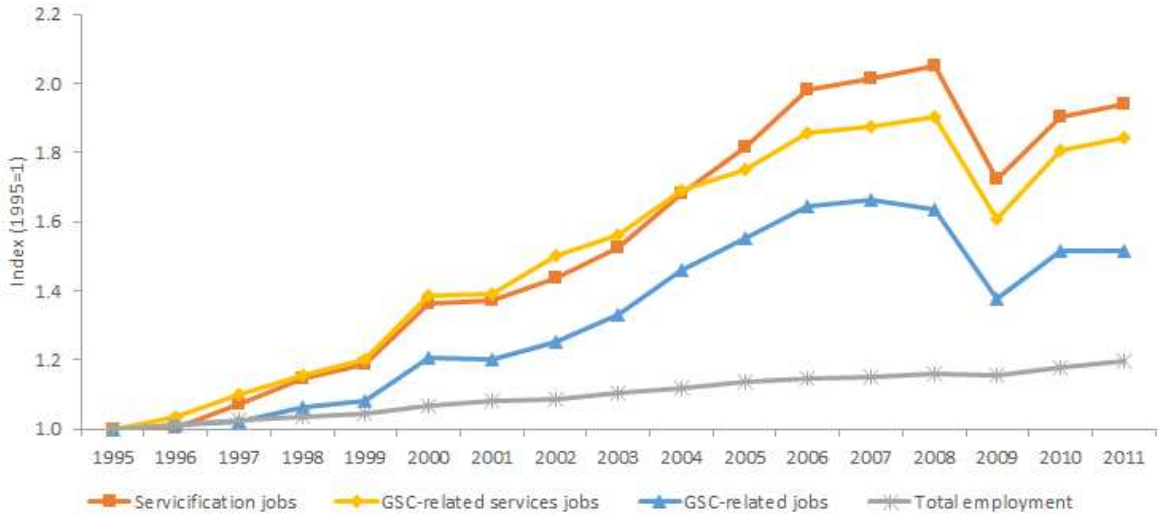
make their product more sophisticated and diversified, and it is these services that add value to a product and can increase firms' profitability. Another example is a producer of coffee capsules which, besides the actual production of the capsule, may offer recycling services to consumers. This is in response to consumers' preference for environmental regulations or could in some instances even be the response to legal regulations. The servicification of manufacturing can hence be driven by both, the strategy of a firm to remain profitable or the response of a firm to certain requirements (National Board of Trade Sweden, 2016).

While services have become increasingly important as an input into the production of manufactured goods, they have at the same time become more tradable. Over the past decades, the importance of services trade has increased, reaching a share of 23 per cent in global trade in 2015.[2] Information and communication technologies have been facilitating trade of services, making some services tradable, which traditionally used to be non-tradable. For example, many business and other services can nowadays be provided across borders through the internet without the service provider necessarily moving physically close to his or her client. While services trade is on average still more costly than goods trade (Gervais and Jensen, 2013; Miroudot, Sauvage and Shepherd, 2013), the importance of services trade has been increasing and is expected to increase further (Francois and Hoekman, 2010).

The increasing importance of services in the production of manufactured goods and the increased tradability of services have, taken together, contributed to the creation of new types of jobs. These are services jobs in global supply chains that are related to the production of manufactured goods, defined in the following as "servicification jobs".

[2] This figure is based on trade data from UNCTAD.

Figure 1. Evolution of servicification jobs in comparison with other types of jobs (index, 1995 = 1)



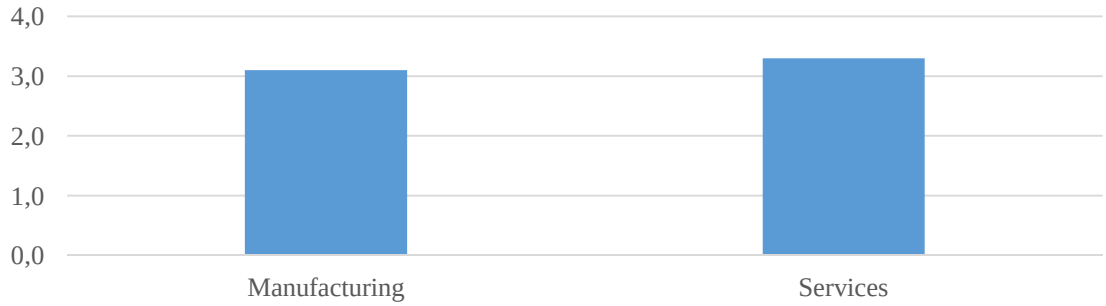
Source: Figure 9 in Kizu, Kühn and Viegelahn (2016).

Figure 1 shows the evolution of servicification jobs in 1995-2011 for the 40 countries with available estimates. As reported by Kizu, Kühn and Viegelahn (2016), 96.6 million services workers contributed to the global supply chain for manufactured goods in 2011, compared with 49.8 million workers in 1995. This accounts for 4.5 per cent of total employment and 21.5 per cent of all jobs in global supply chains. In 2011, 62.3 million of these workers were located in emerging economies, while 34.4 million were located in advanced economies. For emerging economies, this corresponds to 18.9 per cent of all jobs in global supply chains; for advanced economies, this accounts for 28.7 per cent. While servicification jobs are hence still concentrated in advanced economies, emerging economies are slowly but steadily catching up, with an increasing number of services workers contributing to the global supply chain for manufactured goods. In terms of trends, the number of servicification jobs has grown more rapidly than the total number of services jobs in global supply chains, the total number of jobs in global supply chains and total employment.

This dependence of a larger number of services jobs on the global supply chain for manufactured goods has important implications. Kühn and Viegelahn (Forthcoming) study the impact of foreign trade barriers on domestic jobs linked to global supply chains. Foreign barriers to goods trade in the form of a tariff are expected to affect the domestic exporter of the good on which the tariff is levied. As the exporter is a goods producer, it is part of the manufacturing sector. But the tariff will also affect the

suppliers that provide inputs to the exporter. This can include both manufacturing but also services firms, if services inputs are used to produce the affected goods exports.

Figure 2. Estimated impact of a one percentage point decrease of the average applied import tariff on jobs related to the affected trade flow, by sector (in %)



Source: Figure 13.2 in ILO (2016); Kühn and Viegelahn (Forthcoming).

Figure 2 shows the estimated impact of a one percentage point decrease of the average applied tariff on goods trade, on jobs that are linked to the affected trade flow, including both manufacturing and services jobs. Results show that the impact on the number of services and manufacturing jobs, related to the affected trade flow, is very similar in magnitude, and corresponds to more than 3 per cent. Without any services inputs entering the manufacturing sector, we would not expect services jobs to be affected by trade barriers in goods, but the two sectors are linked through supply chains. The interconnectedness between sectors, however, implies that also services jobs are affected by this policy. The manufacturing and services sector can hence not be treated as completely separate entities (Lodefalk, 2015).

3. Future outlook

With technological progress advancing rapidly, automation might replace some of the workers employed in the manufacturing sector with machines or robots. At the same time, products are becoming more sophisticated and are produced with more and more services inputs that create an increasing share of the value of a good. Services jobs that provide these inputs are often high-skilled jobs with rather complex tasks, which cannot be easily automated. The share of services workers contributing to the global supply chain for manufactured goods is hence likely to increase further, implying a continued servicification of manufacturing. Countries need to be prepared for these changes, developing a labour force that has the right skills to benefit and take part in the gains associated with these developments, and having labour market institutions that ensure that the new types of jobs created are decent.

4. References

Francois, J.; Hoekman, B., "Services trade and policy", *Journal of Economic Literature* Vol. 48 No. 3, 2010, p. 642–92.

Gervais, A.; Jensen, J.B., *The tradability of services: geographic concentration and trade costs*, NBER Working Paper No. 19759, Cambridge MA: National Bureau of Economic Research, 2013.

ILO, *World Employment and Social Outlook: The changing nature of jobs*, Geneva: International Labour Office, 2015.

ILO, *Handbook on assessment of labour provisions in trade and investment agreements*, Studies on Growth with Equity, Geneva: International Labour Office, 2016.

Kizu, T.; Kühn, S.; Viegelahn C., *Linking jobs in global supply chains to demand*. ILO Research Paper No. 16, Geneva: International Labour Office, 2016.

Kühn, S.; Viegelahn C. Forthcoming. *Foreign trade barriers and jobs in global supply chains*, ILO Research Paper No. 19. Geneva: International Labour Office.

Lodefalk, M., *Servicification of firms and trade policy implications*. Working Paper 1/2015, Örebrö: Örebrö University School of Business, 2015.

Miroudot, S.; Sauvage, J.; Shepherd, B., "Measuring the cost of international trade in services", *World Trade Review*, Vol. 12 No. 4, 2013, p. 719-735.

National Board of Trade Sweden, *The servicification of EU manufacturing: Building competitiveness in the internal market*, Stockholm, 2016.